Environmental Technology Verification Program

Site Characterization and Monitoring Technologies

An EPA partnership with Sandia National Laboratories and Oak Ridge National Laboratory

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Electronic Brownbag

Reaching-Out to Users and Purchasers

We are continually looking for new, better, and easily accessible ways to get the performance information we collect during the verification process in front of the people who need it and who can use it. One of the most exciting new means to share information with users and purchasers of site characterization and monitoring technology is a Technology Innovation Office (TIO)-sponsored Electronic Brownbag Seminar. This outreach mechanism relies on the Internet and a teleconferencing bridge to bring important technical information to participants, all while seated in the comfort of their own office.

For years, the SCMT Pilot has been partnering with TIO (a part of EPA's Office of Solid Waste and Emergency Response). TIO has an active outreach program and is using innovative ways to inform people about new environmental technologies. TIO's mission is to advance the use of new technologies for characterization and remediation. TIO works in concert with states, other Federal agencies, professional associations, and private companies to stimulate a marketplace with a rich diversity of cost-effective solutions for the Nation's remediation needs. TIO produces numerous one-time and periodic publications, and electronic information on technologies. The office markets remediation and site characterization technologies, most of which can be viewed or downloaded from their Hazardous Waste Clean-up Information Web Site (http://clu-in.org).

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Technology Testing Status

Environmental Decision Support Systems (DSS) Verification

A demonstration of DSS software packages was conducted in Albuquerque, NM and Upton, NY in September and October, 1998, respectively. The following vendors participated in the demonstration: C Tech Development Corporation, Environmental Software, ESRI, DecisionFX, Inc., and University of Tennessee Research Corporation. We are currently in the process of evaluating the data and preparing Environmental Technology Verification Reports on the technologies evaluated. Data interpretation has been vastly more challenging than originally anticipated due to the multiple types of problems being evaluated (visualization, both 2D and 3D, sample optimization, and cost/benefit analysis). The number of data sets used for the evaluations also added complexity. An additional challenge is the production of an evaluation report on very sophisticated technology which is clear and understandable to the potential non-expert user. We expect the reports to be completed, and verification statements signed, by September.

Explosive Contaminant Field Analytical Technologies Verification

The EPA and the Department of Defense (DoD) Environmental Security Technology Certification Program (ESTCP), in partnership with Oak Ridge National Laboratory, is planning to conduct a demonstration to test and verify the performance of various explosives detection technologies under field conditions. Contaminated soil and groundwater represent significant environmental problems at active and former explosives manufacturing and packing plants, burning grounds, and other disposal sites. The devices which will be tested are used to analyze samples which may be used to make site characterization, monitoring, or cleanup decisions. Many EPA Regions, several Program Offices, DoD, and other Federal agencies have expressed an interest in the performance of various explosives detection devices when tested under field conditions.

In an effort to minimize the costs of the demonstration, the vendors will be asked to mobilize to only one DOD facility. However, samples from several well-characterized sites will be shipped to that site and used in the demonstration to assess the performance of the technologies. Analytical data obtained from

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On January 21st we tried out this novel outreach approach by hosting the first Electronic Brownbag Seminar on PCB Field Analysis Technologies (and have had subsequent deliveries on April 6th and 8th). Invitations went out to state regulators who are working in site remediation and are subscribers to *TechDirect* (see sidebar). We arranged for 40 telephone lines to be available and asked the invitees to invite others in their immediate office to participate. We asked that folks gather around a speaker phone and a computer that was able to access the necessary Web site to interactively view the slide presentation. The slides were posted on the CLU-IN web site.

Dr. Roger Jenkins from Oak Ridge National Laboratory presented the bulk of the technical material during the 90-minute presentation. The presentation focused on the performance of the seven PCB field analytical technologies that had recently gone through the verification process. The purpose was to share performance information about each technology, not to compare the performance of one technology to another. The briefing also discussed the demonstration design, the theory of operation of each technology, advantages, and limitations. There was ample opportunity for questions from the audience.

About 150 people have participated in the three Brownbag Seminars. We have received many favorable comments and Plans are being made to hold another PCB Seminar soon.

For more information on the electronic Brownbag Seminar, see TechDirect, page 3.

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in-field analyses will be used to determine performance parameters such as accuracy, precision, sensitivity, cost, and sample throughput. As part of the demonstration, the vendors will be expected to operate their technology in accordance with the experimental design of the study. The demonstration is expected to be conducted over a 3 to 7 day period.

On Friday March 5, 1999, ESTCP and ETV sponsored a one-day vendor meeting to introduce the verification program to interested technology developers, provide the vendors with an overview of the draft test design, and to offer each developer an opportunity to make a presentation on their technology. Thirteen vendors expressed an interest in the demonstration. Five vendors made presentations at the meeting. One vendor was unable to attend, but plans to participate. After the meeting, the demonstration team met to discuss the candidates and select potential participants. To date, there are eight vendors representing 12 technologies that are interested in participating. Shipment of pre-demonstration test samples to those vendors expressing interest will occur in mid-June, with the demonstration slated for early August.

For Further Information:

Technical Contacts: Roger Jenkins, Oak Ridge National Laboratory, 423-576-8594 (jenkinsra@ornl.gov) and Tom Jenkins, Cold Regions Research and Engineering Lab., 603-696-4385 (tjenkins@crrel.usace.army.mil). The EPA point of contact is Eric Koglin, National Exposure Research Laboratory, Environmental Sciences Division, Las Vegas, NV, 702-798-2432 (koglin.eric@epa.gov).

Ground Water Sampling Demonstration Nears Field Testing Phase

Following a successful vendor conference at the EPA facilities in Las Vegas in late February, plans are taking shape for a ground water sampling technology demonstration in the July-August time frame at the NASA-Stennis Space Complex in southwest Mississippi. We expect eight participating vendors with technologies that include micro-purge bladder pumps, discrete-level, no-purge grab samplers, submersible electric pumps, as well as discrete-level diffusive and mass-integrating samplers.

The demonstration will be staged at the NASA-Stennis facility primarily because the US Geological Survey has a 100-foot standpipe—essentially an above-ground well—at this site. The standpipe will allow vendors to sample pre-mixed solutions from inside the pipe, while reference samples are collected from the outside of the pipe. The samplers will be performance tested at multiple depths for a number of common volatile organic compounds.

Sampler performance will also be evaluated at a number of ground water monitoring wells within the Stennis complex. The principle contaminant at the site is TCE and sampling depths in the monitoring wells will range from 15 to 50 feet.

USGS and Sandia National Laboratories will conduct pre-demonstration tests at the site in early July. These tests will be used to assess the performance of the standpipe in preparation for the full-scale vendor tests. A demonstration plan has been sent out to the vendors and other interested parties for technical comment.

For Further Information:

Technical Contacts: Wayne Einfeld, Sandia National Laboratories, 505-845-8314 (weinfel@sandia.gov). The EPA points of contact are Steve Gardner, 702-798-2580 (gardner.steve@epa.gov) or Eric Koglin 702-798-2432 (koglin.eric@epa.gov), National Exposure Research Laboratory, Environmental Sciences Division, Las Vegas, NV.

Vendor Conference Announced for Geophysical Technologies

A vendor conference will be held in Las Vegas on June 8th at the EPA facilities on the campus of the University of Nevada Las Vegas. Thirty-seven vendors have been contacted so far, and ten have indicated that they would be

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interested in the demonstration. We are always concerned that a qualified vendor may not have been contacted, so please get in touch if you haven't heard from us!

At present, all of the technologies that will be applied are electromagnetic in nature and include at least nine different methods. Seismic surface wave analysis is a method that may be appropriate for this demonstration, and we would like to invite vendors to consider using this technology as a compliment to electromagnetic methods.

Site selection is the issue upon which all else depends. Because of the variety of wastes and burial circumstances in which geophysical technologies are applied, we believe that the demonstration should be held at two sites. One site may be a Brownfield site, the other site could be a landfill or a buried target site. In any case, we desire a site that has not been previously explored with geophysical technologies. We will make every effort to present two sites at the vendor conference. Please contact Thurlow Caffey if you would like to propose a site.

We hope to complete the demonstrations in October 1999. Each site will be available to each vendor for a day. Ground-truth will be established by partial excavation to determine the nature of anomalies after the field explorations are completed. We will discuss site preparations and specific dates at the vendor conference in June.

For Further Information:
Technical Contacts: Thurlow Caffey, Sandia National Laboratories, 505-844-4217 (twcaffe@sandia.gov). The EPA point of contact is Eric Koglin 702-798-2432 (koglin.eric@epa.gov), National Exposure Research Laboratory, Environmental Sciences Division, Las Vegas, NV.

Sediment Sampling Technologies
Following finalization of the demonstration plan, field demonstrations of two sediment sampling technologies took place at a first site in the Boston area during the week of April 26, 1999. Testing is scheduled for a second location the week of May 3, 1999.

For Further Information:
Technical Contact: Dr. Stephen Billets, 702-798-2232 (billets.stephen@epa.gov), National Exposure Research Laboratory, Environmental Sciences Division, Las Vegas, NV or Dr. Brian Schumacher, 702-798-2242 (schumacher.brian@epa.gov).

Total Petroleum Hydrocarbon Detection Technologies
The Site Characterization and Monitoring Technology (SCMT) Pilot and the Superfund Innovative Technology Evaluation (SITE) Program are collaborating on the demonstration and verification of total petroleum hydrocarbon (TPH) detection technologies. Total petroleum hydrocarbon contamination in soil and groundwater is a widespread problem and field analytical TPH analysis technologies meet important characterization needs in this area.

Currently we are compiling a list of potential vendors who may be interested in participating in the verification program. We anticipate that the vendor meeting will be held in Las Vegas during late May or early June.

For Further Information:
Technical Contact: Dr. Stephen Billets, 702-798-2232 (billets.stephen@epa.gov), National Exposure Research Laboratory, Environmental Sciences Division, Las Vegas, NV.

TechDirect

If you would like to know about upcoming Brownbag Seminars, TIO's monthly listserv publication *TechDirect* will keep you informed. *TechDirect* is an information service that highlights new publications and events of interest to site remediation and site assessment professionals. At the beginning of every month, the service will e-mail a message describing the availability of publications and events. For publications, the message will explain how to obtain a hard copy or how to download an electronic version. To subscribe, follow the links on CLU-IN.

Koglin's Korner

We are off and running with another busy year of testing and verifying technologies. We are hoping to have all the field work completed for four of the five upcoming demonstrations by the end of the September. The demonstrations are listed in the Calendar of Events. There are 24 new vendors, and four who have participated in past demonstrations, that have expressed an interest in having one or more technologies verified. If you would like to participate in any of the demonstrations, please feel free to contact me or one of the contacts listed.

SCMT Pilot FY99 Calendar

GW Sampling

Vendor Conference – Feb 99
Vendor Selection – Mar 99
Demo Plan Complete – May 99
Field Demonstration – Jul-Aug 99
Data Analysis – Aug-Sep 99
Draft Reports – Oct 99
Publish/Post Results – Dec 99

Decision Support

Data Analysis – Apr 99
Draft Reports – Jul 99
Publish/Post Results – Sep 99

Geophysical Characterization Technologies

Site Selection – Jan-Jun 99
Vendor Conference – Jun 99
Vendor Selection – Jun 99
Demo Plan Complete– Aug 99
Field Demonstration – Oct 99
Data Analysis – Nov-Dec 99
Draft Reports – Jan 00

Explosives Detection

Vendor Conference – Mar 99
Vendor Selection – Apr 99
Demo Plan Complete – Jun 99
Field Demonstration - Aug 99

Explosives Detection (cont.)

Data Analysis Complete – Oct 99
Draft Reports Complete – Dec 99
Publish/Post Results – Dec 99

Sediment Sampling Technologies

Vendor Meeting – Dec 99
Demonstration Plan Complete – Apr 99
Field Demonstration – Apr-May 99
Draft Reports – Sep 99
Release Final Reports– Dec 99

Total Petroleum Hydrocarbon Detection Technologies

Vendor Meeting – May 99
Demonstration Plan Complete – Sep 99
Field Demonstration– Oct 99
Draft Reports – Mar 00
Release Final Reports– May 00

For more information on the Environmental Technology Verification (ETV) program, please visit the Pilot home page at: http://www.epa.gov/etv/ **or** http://clu-in.org

ETV SCMT Newsletter Editor:
Thomas D. Burford
Sandia National Laboratories
P. O. Box 5800, MS-0719
Albuquerque, NM 87185-0719
Phone (505) 845-9893 Fax (505) 844-0543
e-mail: tdburfo@sandia.gov

Thomas D. Burford
Sandia National Laboratories
P.O. Box 5800
Albuquerque, NM 87185-0719

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